



Association of mortality with high temperatures in a temperate climate: England and Wales

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Abstract:

Background: It is well known that high ambient temperatures are associated with increased mortality, even in temperate climates, but some important details are unclear. In particular, how heat-mortality associations (for example, slopes and thresholds) vary by climate has previously been considered only qualitatively. **Methods:** An ecological time-series regression analysis of daily counts of all-cause mortality and ambient temperature in summers between 1993 and 2006 in the 10 government regions was carried out, focusing on all-cause mortality and 2-day mean temperature (lags 0 and 1). **Results:** All regions showed evidence of increased risk on the hottest days, but the specifics, in particular the threshold temperature at which adverse effects started, varied. Thresholds were at about the same centile temperatures (the 93rd, year-round) in all regions-hotter climates had higher threshold temperatures. Mean supra-threshold slope was 2.1%/8C (95% CI 1.6 to 2.6), but regions with higher summer temperatures showed greater slopes, a pattern well characterised by a linear model with mean summer temperature. These climate-based linear-threshold models capture most, but not all, the association; there was evidence for some non-linearity above thresholds, with slope increasing at highest temperatures. **Conclusion:** Effects of high daily summer temperatures on mortality in English regions are quite well approximated by threshold-linear models that can be predicted from the region's climate (93rd centile and mean summer temperature). It remains to be seen whether similar relationships fit other countries and climates or change over time, such as with climate change.

Source: <http://dx.doi.org/10.1136/jech.2009.093161>

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

Climate Change and Human Health Literature Portal



resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : England;Wales

Health Impact:

specification of health effect or disease related to climate change exposure

Injury

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology:

type of model used or methodology development is a focus of resource

Outcome Change Prediction

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Elderly, Low Socioeconomic Status

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content